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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
08/770,381	12/03/96	KESSLER	D 74508NAB

LM02/0912

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EXAMINER	
WILSON, J	
ART UNIT	**PAPER NUMBER**
2712	18

DATE MAILED: 09/12/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

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Office Action Summary

Application No.	Applicant(s)
08/770,381	Kessler et al.
Examiner	**Group Art Unit**
Jacqueline Wilson	2712

☒ Responsive to communication(s) filed on *Sep 24, 1999*

☒ This action is **FINAL.**

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire *three* month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claim

☒ Claim(s) *1, 4, 5, 10-13, 15, 17, and 18* is/are pending in the applicat

Of the above, claim(s) _____ is/are withdrawn from consideration

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) *1, 4, 5, 10-12, 15, 17, and 18* is/are rejected.

☒ Claim(s) *13* is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☒ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

DETAILED ACTION V

1. The declaration filed on 07/03/00 under 37 CFR 1.131 has been considered but is ineffective to overcome the Fukushima references.

The evidence submitted is insufficient to establish a conception of the invention prior to the effective date of the Fukushima references. While conception is the mental part of the inventive act, it must be capable of proof, such as by demonstrative evidence or by a complete disclosure to another. Conception is more than a vague idea of how to solve a problem. The requisite means themselves and their interaction must also be comprehended. See *Mergenthaler v. Scudder*, 1897 C.D. 724, 81 O.G. 1417 (D.C. Cir. 1897). With reference to MPEP 715.02, the declaration must establish possession the whole invention claimed. Furthermore, the declaration under 37 CFR 1.131 is required to show more than what the reference shows. The applicant's declaration must disclose evidence of possession of the invention and not just of what one reference (in combination of applied references) happens to show.

Response to Arguments

2. Applicant's arguments filed 07/03/00 have been fully considered but they are not persuasive.

The applicant argues that the prior art (Fukushima) does not teach a spatial filter. However, Fukushima was used to teach that birefringent filters are made of lithium niobate. Since

Greivenkamp, Jr fails to teach known types of birefringent filters, Fukushima was used to teach that these filters may be made of lithium niobate.

Regarding the newly added limitations, please see rejection below.

Claim Rejections - 35 USC § 112

3. Claims 4 and 13 recites the limitation "optical filter". There is insufficient antecedent basis for this limitation in the claim.

4. Claim 4 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. In this case, the applicant claims that the spatial filter is Lithium Tantalate and lithium niobate.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1, 10, 11, 12 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Greivenkamp, Jr. '193 and Fukushima (U.S. 5,579,420).

Regarding Claim 1, Greivenkamp, Jr. '193 teaches an imaging apparatus for generating an image signal from incident light with higher spatial frequencies of the incident light limited to reduce undersampling artifacts comprising an image sensor for generating the image signal from an array of photosites, and an optical section having a birefringent uniaxial crystal spatial filter, having a first and second plane plate 16 and 20, interposed in a path of the incident light to produce a blurred image on the photosites (col. 1, lines 40-55; col. 3, lines 50-65). Greivenkamp, Jr. '193 further discloses that by blurring the version of the original image, the spatial resolution is (limited) reduced (col. 1, lines 45-48; also col. 3, lines 61- col. 4, line 5). This teaches that a portion of the high spatial frequency is removed to produce the blurred image on the photosites. However, Greivenkamp, Jr. '193 fails to disclose the birefringent uniaxial crystal optical filter birefringence is greater than 0.05 and being made of lithium niobate.

Fukushima '420 teaches an optical filter formed of birefringent crystal such as lithium niobate (col. 5, lines 1-5). Lithium niobate has a birefringent value of 0.09, which is greater than 0.05. The strong wavelength dependent characteristic of the polarization conversion resulting from the birefringent characteristic of lithium niobate makes the device useful in applications such as multiplexing and/or demultiplexing. Therefore, it would have been obvious to one of ordinary skill in the art to have the birefringent crystal optical filter to be made of lithium niobate which has a birefringence greater than 0.05.

Regarding Claim 10, Greivenkamp, Jr. '193 teaches the four spot rays (See Fig. 2a).

Regarding Claim 11, Greivenkamp, Jr. '193 teaches the optical section includes a lens and the optical filter is positioned between the lens and the photosites for blurring the image on the photosites (See Fig. 1; col. 3, lines 50-65; col. 1, lines 40-50).

Claim 12 is analyzed and discussed with respect to Claim 10 and 2. (See rejection of Claims 10 and 2 above.)

Regarding Claim 15, Greivenkamp, Jr. '193 teaches the second plate comprises a plane which is tilted at a 45^0 angle to a plane of the first plate (col. 4, lines 36-45).

Regarding Claim 18 (18), Greivenkamp, Jr. '193 teaches that the thickness of the first plate is not equal to the thickness of the second plate (see fig. 9a).

7. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Greivenkamp, Jr. '193 and Fukushima et al. (U.S. 5,646,399).

Greivenkamp, Jr. '193 teaches an imaging apparatus for generating an image signal from incident light with higher spatial frequencies of the incident light limited to reduce undersampling artifacts comprising an image sensor for generating the image signal from an array of photosites, and an optical section having a birefringent uniaxial crystal optical filter interposed in a path of the incident light to produce a blurred image on the photosites (col. 1, lines 40-55; col. 3, lines 50-65). Greivenkamp, Jr. '193 states that by blurring the version of the original image, the spatial resolution is (limited) reduced (col. 1, lines 45-48; also col. 3, lines 61- col. 4, line 5). This teaches that a portion of the high spatial frequency is removed to produce the blurred image on

the photosites. However, Greivenkamp, Jr. '193 fails to disclose the birefringent uniaxial crystal spatial filter is lithium Tantalate.

Fukushima et al. '399 teaches that lithium Tantalate may be used as an optical birefringent crystal element (col. 8, lines 11-15) replacing the lithium niobate. Like lithium niobate, Fukushima et al. '399 teaches that lithium Tantalate may also be used to improve the mass productivity. Therefore, it would have been obvious to one of ordinary skill in the art to use lithium Tantalate as a birefringent uniaxial crystal spatial filter.

8. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Greivenkamp, Jr. '193 and Fukushima '420 as applied to claim 1 above, and further in view of Takatori et al. (U.S. 5,715,085).

Regarding Claim 5, neither Greivenkamp, Jr. '193 nor Fukushima '420 teaches an angle between an optical axis of the spatial filter and a line normal to a filter facet is 37.85^0. However Takatori et al. '085 teaches that the angle of the spatial filter with respect to the incident plane is set smaller than an angle of 45^0 (col. 1, lines 65-68). Takatori et al. '085 teaches that due to the fact that an angle of inclination of the optical axis of the spatial filter with respect to the incident plane is set about 35^0, which includes the angle 37.85^0, even when the angle of incidence of the incident light is great, variations of the separation width between an ordinary ray and an extraordinary ray are not great, that is, the characteristic of the spatial filter does not vary according to the angles of incidence of the incident light (col. 2, lines 1-9). When an angle of

incidence of an incident light ray into the incident plane is large, the separation width of the ray varies greatly (col. 1, lines 40-49). It would be advantageous to have the angle set below 45^0 and about 35^0 to prevent the generation of a false signal due to the width of the ray. Therefore, it would have been obvious to one of ordinary skill in the art wherein an angle between an optical axis of the spatial filter and a line normal to a filter facets is below 45^0 and about 35^0, which includes the angle 37.85^0.

9. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Greivenkamp, Jr. '193 and Fukushima '399, and further in view of Watanabe et al. (U.S. 3,784,734).

Regarding Claim 17(16), neither Greivenkamp, Jr. '193 nor Fukushima '399 teaches a thickness of the first plate is equal to a thickness of the second plate.

However, Watanabe et al. '734 discloses that the sheets (Fig. 20, elements 34a and 34b) are identical to each other (col. 10, lines 67-68). Watanabe et al. '734 teaches the thickness of the sheets (element 34a and 34b) creates a rhomboidal pattern of the four spot to be of 45^0 (col. 11, lines 54-62; see Fig. 22). By creating the thickness of the first plate to equal to a thickness of the second plate having the rhomboidal pattern of the rays, aids in producing color video signals which do not cause any moire in the reproduced picture. Therefore, it would have been obvious to one of ordinary skill in the art to have the thicknesses of the first and the second plate to be of equal value.

Allowable Subject Matter

10. Claim 13 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art neither teaches nor fairly suggests an imaging apparatus comprising an image sensor, and an optical section having a spatial filter made of a highly birefringent uniaxial crystal wherein the birefringent uniaxial crystal optical filter is comprised of two double refractors, and the four spots from a rhomboidal pattern wherein a sharp angle of rhomboid is 45^0 and wherein *the spatial filter is rotated about an optical axis of the imaging apparatus such that a base of the rhomboidal pattern forms an angle with one of the imaging apparatus such that a base of the rhomboidal pattern forms an angle with one of two major coordinates of the imaging apparatus of between 20^0 to 40^0.*

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for response to this final action is set to expire THREE MONTHS from the date of this action. In the event a first response is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event will the statutory period for response expire later than SIX MONTHS from the date of this final action.

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Sasaki et al. (U.S. 5,477,381)

Takasugi (U.S. 5,471,343)

Shiraishi (U.S. 5,452,129)

Sato et al. (U.S. 4,626,897)

13. Any inquiries concerning this communication from the examiner should be directed to **Jacqueline Wilson** whose telephone number is (703) 308-5080. The examiner can normally be reached Monday-Friday from 9:00 A.M. to 5:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Wendy Garber**, can be reached at (703) 305-4929. The fax number for this group is (703) 308-6306/6296.

Any response to this action should be mailed to:

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or Faxed to:

(703) 308-9051, (for formal communication intended for entry)

or:

(703) 308-6306/6296, (for informal or draft communications, please label "PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, V.A., Sixth Floor (Receptionist).

JBW

September 8, 2000

Wendy Garber
Supervisory Patent Examiner
Technology Center 2700